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THE

# PHYTOLOGIST.

A BOTANICAL JOURNAL.

'Ως ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—*πάντα ἐν σοφίᾳ ἐποίησας.*

ΨΑΛΜ. *ργ΄.* 24.

Benedicite universa germinantia in terra Domino; laudate et superexaltate Eum in secula.—*Hymn. iii Pueror. v.* 76.

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# NORFOLK AND SUFFOLK BOTANY.

## *Plants of Lopham Fen and the Neighbourhood.*

*By* C. J. Ashfield.

On the 1st of September, 1862, I paid another visit to Lopham Fen. This being nearly a fortnight earlier in the season than the time of my excursion thither in 1861 (see ‘Phytologist’ for November last, p. 321), I hoped to be able, not only to clear up some doubts as to two or three of the plants found on the previous occasion, but also to add some fresh plants to the list of those then found. This hope was fulfilled to a considerable extent, and the following is a report of the results of my recent investigation. The most important of the doubtful plants found last year was that exceedingly scarce one, *Liparis Loeselii.* I am happy to say that it can no longer be considered a *doubtful* inhabitant of Lopham Fen, I having, on the first of the present month, and also on a subsequent day, found several specimens of the plant, with the flowering stem still existing and the seed-vessels attached thereto, and not at all too far advanced for the complete identification of the plant. On the occasion of my second visit this year, I was accompanied by a botanist from Edinburgh, who was on a botanical tour, and whose chief object in visiting this particular district was the hope of seeing the above-named rarity in one of its few native British abodes. I had the great satisfaction of pointing out several specimens of the plant to him, the greater portion of which we left for the benefit of future botanical investigators. The plant grows on the south side of the river, and belongs therefore to the county of Suffolk, and must be described as *scarce* even there. It is however not likely to be eradicated, as, from its low stature, green appearance, and habit of growing close to the stems of rushes, etc., it is very difficult to find—so much so, that even upon my second visit this year I had a long search before I could find a single specimen for my Edinburgh friend. Another plant about which I was doubtful last year, I found in great plenty upon my two recent visits, viz. *Drosera anglica;* it was growing plentifully in many places, mixed with the other two species, *D. rotundifolia* and *D. longifolia.* I pointed out to my companion the plant resembling the Michaelmas Daisy (‘Phytologist’ for November last, p. 323),

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which was a puzzle to him, as it had been and still is to myself and others. We found most, if not all, of the marsh plants enumerated in my previous list, several of which were new to my brother-botanist. We had some difficulty in finding specimens of *Utricularia minor*, which was plentiful last year. This I conceive to be owing to the scarcity of water in some of the shallow pools in which the plant grows. Shortly after finding the *Liparis*, we crossed the river and entered the county of Norfolk. We continued along the bank of the stream in an easterly direction towards Diss, where my friend was to take the train for Norwich. Among the rushes, etc., on the left we soon espied that handsome plant *Ranunculus Lingua* in considerable quantities. Further on, in the river itself, we met with *Sium latifolium* and *Rumex Hydrolapathum*. After a time we emerged into the high road from Lopham to Bressingham and Diss, and on the hedgebank to the left, shortly before reaching Bressingham, we saw *Mentha sylvestris* growing in the greatest abundance. At Bressingham my companion and myself parted company, he pursuing his way to Diss, and I proceeding on my return to the place of my temporary sojourn in Suffolk. In woods at Bressingham, *Angelica sylvestris* and *Lythrum Salicaria* were growing most luxuriantly, and *Rhamnus Frangula* and *R. catharticus* were abundant. *Lysimachia vulgaris* was also occasionally to be met with.

Arrived upon Wortham Ling, I soon espied *Cnicus acaulis*, which was plentiful there. In one spot on the Ling, near the bridge over the Waveney to Roydon, there was a considerable quantity of *Spiranthes autumnalis;* and a little further on, in a rather damp place from which the surface had been pared, I observed a number of specimens of *Radiola Millegrana*, which was the last of my recent botanical discoveries in East Anglia.

The above is not a very extensive list of plants, but it is a fair supplement to the article on Norfolk and Suffolk Botany, which was printed in the 'Phytologist' for November, 1861. The species, though few, are of great rarity and interest.

*Preston, September*, 1862.

# BOTANY OF THE CHILTERNS.

## *Further Remarks on the Botany of the Chilterns.*

*By* C. J. Ashfield.

During a visit of a couple of days to Aylesbury, in September, 1862, I determined to devote the afternoon of one of them to a ramble on the Chiltern Hills, near Wendover, partly for the enjoyment of the invigorating breezes and beautiful views which there abound, but chiefly of course for the purpose of searching for the floral productions of the same hills. I met with considerable success, considering the shortness of the time at my disposal and the lateness of the season, and found many plants not mentioned in the short article published in the 'Phytologist' in April last, p. 118.

I took advantage of a "lift" to Wendover, and, after walking about a couple of miles along the Amersham road, turned to the right at Wendover Dean, and soon began to ascend the hills. I soon met with *Conyza squarrosa* and *Origanum vulgare* by the side of the lane. On arriving about two-thirds of the way up the ascent, I got on the hedgebank to look over into the adjoining field, and saw a very conspicuous-looking shrub in a hedge a little distance off. On reaching it I found it to be *Pyrus Aria*, and I afterwards met with it plentifully in woods and hedges during the day's walk, and in a few places growing with *Viburnum Lantana*. In a hedge nearly at the top of the hill, I met with a quantity of *Euphorbia amygdaloides*, and afterwards saw it growing most plentifully in a beech-wood at the summit. In the same wood grew *Hieracium sabaudum* and some others of that difficult tribe, as well as *Humulus Lupulus*, *Euonymus europæus*, and the before-mentioned *Pyrus Aria* and *Viburnum Lantana*. About the edges of the wood I found an abundance of *Poterium Sanguisorba*, *Gàlium Mollugo*, *Centaurea scabiosa*, and *Origanum vulgare*. I particularly examined several cornfields on my route, and found numerous plants peculiar to such localities. The most abundant of them, and also the rarest generally, was *Iberis amara*. This plant appears to have a wide range upon the Chilterns, for in July, 1850, I found it growing abundantly near Whiteleaf Cross, several miles distant from the *locale* of my late ramble ('Phytologist,' April, 1861, p. 118). *Linaria minor*, *Veronica*

*Buxbaumii, Fedia olitoria, Scandix Pecten-Veneris, Trifolium procumbens, Galeopsis Ladanum, Agrostemma Githago, Ononis arvensis,* and several other species, were plentiful in some of the fields, and in one field I found *Centaurea Cyanus.* I think this plant is becoming much more uncommon than it used to be. In the neighbourhood of Preston, in Lancashire, it is nearly, if not quite, extirpated. Among the short grass on the brow of the hill, overlooking the vale of Aylesbury, grew plentifully *Cnicus acaulis, Gentiana Amarella, Helianthemum vulgare,* and *Thymus Serpyllum;* and in the same locality I observed numerous specimens of *Juniperus communis.* My time was now getting limited, as I had to walk to Aylesbury; so, after duly admiring the view over the celebrated vale of that name, I began to descend the hill. I did not find this quite so arduous an undertaking as I had found the descent of Pendle Hill, in Lancashire, some weeks before, but it was very steep and slippery for some distance. The descent of a steep hill is not so long an operation as the ascent of it, but I am not at all sure that it is not as laborious a one. Arrived at the bottom of the hills, I struck across the fields towards my destination, continuing to botanize in all the likely spots I passed. At the edge of one of the cornfields I observed *Cichorium Intybus* in some quantity, and in a pasture-field *Pimpinella magna* and *P. Saxifraga. Sison Amomum* and *Dipsacus sylvestris* grew plentifully in many of the ditches, and *Clematis Vitalba* and *Humulus Lupulus* profusely adorned many of the hedges. In a ditch on the right-hand side of the road, just before reaching the outskirts of Aylesbury, I found a considerable quantity of *Helminthia echioides.*

During my walk, I bore in mind the plants inquired for in the 'Phytologist,' vol. i. p. 108, viz. *Habenaria chlorantha, Bupleurum rotundifolium, Ajuga Chamæpitys,* and *Spiranthes autumnalis,* but did not find any of them. It was probably too late in the season for some of them.

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## BOTANY OF THE KINGDOM OF FIFE.

### *A Walk along the Seashore from St. Andrew's to Craig, or what is locally known as the "East Nook of Fife," in the Summer of* 1862.

Early in the morning of the 7th of July we examined the baroscope, where the mercury was still retaining its lofty position, and the horoscope we found at 5.30 A.M.; we loaded the corners of our vasculums with our *viaticum*, or the necessaries for the day, and betook ourselves through the still quiet, slumbering loneliness of the streets of the ancient city. Passing along by the ruined walls which enclose the lands once the site of the monastery of the Augustinian order of friars, we found the usual associate of old walls, viz. *Parietaria officinalis.* On this wall, which is in good preservation, twenty feet in height and four in breadth, among the green foliage of common plants, were readily observed the tall stems and globular umbels of *Allium vineale*, playing wanton gambols with the sea-breeze.

Among more common plants, were abundance of *Malva rotundifolia*, *Hordeum murinum*, and a few patches of *Poa rigida.*

Passing over the bridge that spans the Kimp Burn, and searching the sandy grounds south of the harbour, locally known as the "East Bents," we found among plants of more general distribution, *Poa loliacea* (*Festuca loliacea?*), *Elymus arenarius*, and *Triticum junceum*, in abundance.

*Ononis arvensis* was in profusion, with lighter and darker shades of colour. *Centaurea scabiosa*, blue, pink, and pure white, overtopping the short, growing corn, presented a very striking appearance along the margin of the field. (We never saw *C. scabiosa* with blue flowers, but have seen *Scabiosa arvensis*, or *Knautia arvensis*, with many-coloured flowers.)

*Silene noctiflora* was also in abundance. We visited again the station of *Cnicus arvensis*, var. *setosus*, where we found it at a separate place, sixty yards distant; this variety still retains its distinctive appearance in the two stations, among the East Bents. We have also found this variety on the Tent Muirs several years ago. *Thalictrum flavum* was also abundant, associated with *Tragopogon pratensis.*

Passing along the rugged cliffs of Kingkell, where, from the grassy banks above the Maiden Rock (a naked rock, covered with the grey Lichen *Ramalina*, and enlivened with the twining stems of the Honeysuckle, *Lonicera Periclymenum*), we arranged our plants collected from the cliffs, noticing *Solidago Virga-aurea*, *Gymnadenia conopsea*, *Habenaria viridis*, and *Helianthemum vulgare*, with plants of more general distribution. The view of St. Andrew's from this point, embracing the ruins of its castle and cathedral, is considered one of its best views under the impress of the morning sun. The lovers of geology, while our kettle was boiling our coffee, did not fail to take drawings of various rocks, illustrative of upheavings and strata (*problematical ?*) of that science. It being low water, they were thus accurately deciphered from the cliffs.

Having regaled ourselves with the cup of peace made from mineral water, which tastes much of iron, we pursued our course along the beach, passing Kingkell Cave, a natural chasm extending thirty-five feet. Further onward we suddenly turned into view several singularly formed rocks, two of which are termed the "Rock and Spindle;" when these rocks are viewed in a certain position, they certainly bear a resemblance to a monster representation of the old domestic spinning-wheel.

Passing onward, we found the Buddo Rock, so named, being a huge mass of isolated rock, with an accessible cleft up the centre. After crossing the Kenty, and searching the cliffs and rocks, we arrived at Fife Ness, where we gathered some pieces of wreck from the coast, slung our plaids round for a tent, kindled our fire, hung our coffee-kettle on the right-angled gipsy triangle, and lay down close together sheltered from the cool sea-breeze, conversing about the associations of the locality, when Danish invasions in the ninth and tenth centuries were something to dread, in 882, when Constantine, king of Scotland, is said to have been put to death here in a cave.

We found the remains of what appears to have been a rampart, known still by the name of the "Danes' Dyke." We, as simple herborizers, were happy that our political connections with the Danes were now of a more pleasant character. In 1538, the bride of James V. landed here, and was met by the king, and conveyed to St. Andrew's. This princess was the mother of Mary, Queen of Scots.

We thus graced our cooking operations with a sermon on stones and flowers, as illustrative of past ages when fewer earthly comforts were the lot of our forefathers. It becomes us to render thanks for the land we live in, and for those that bear rule.

With sharpened appetites, ample justice was done to the good things enjoyed on the rock, and, as the host is generally noted for his providing and supplying, our hosts will be long cherished in our memories.

On this occasion we collected the following plants :—*Geranium sanguineum*, *Rumex* with long, undulated or crisped leaves, *Ligusticum scoticum*, abundant among the rocks; by the margin of the sea, *Artemisia Absinthium* sparingly, *Catabrosa aquatica*, etc.

By Pitmilly Links, growing by the sea, margin of cultivated fields, *Cynoglossum officinale* with its downy foliage and small dark wine-coloured flowers, *Blysmus compressus* and *rufus*.

A single specimen of *Hyoscyamus niger* was all that represented the many gigantic specimens which we have formerly observed in this locality, also *Asplenium marinum*, Fife Ness, that had escaped from the fangs of the merciless fern-fanciers.

Passing on towards Craig, as we rounded the north side of the entrance to the Firth of Forth, we came upon a fine-spread lot of the prince of British plants, *Lithospermum maritimum*, growing by high-water mark, in a gravelly lake. We have found it formerly north of Fife Ness, but failed this time in finding it except in this spot.

By the cliffs at Craig we found the common Wormwood, *Beta maritima*, and what has been registered as the native Cabbage. This we found in a rough state, with Parsley, Parsnips, and various other plants, tributaries from the gardens of Craig, where such plants will readily be found where rubbish from gardens is cast out, and circumstances favour their development.

E. H.

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## EAST ANGLIAN BOTANY.

(*From a Correspondent: to the Editor.*)

Sir,—Induced by a strong desire to investigate the vegetable productions of our native land, and allured by the notices of Norfolk botany which have recently appeared in the 'Phytologist,' we decided last July to visit this, the most eastern part of the kingdom.

The Great Eastern Railway supplies a cheap and expeditious conveyance to Norwich, Lynn, Yarmouth, Lowestoft, etc., by two routes; one by Bishop's Stortford, Cambridge, Ely, and Downham, and the other by a somewhat shorter route, through Romford, Colchester, Ipswich, etc.

The former was selected, because it affords a greater variety of soils, scenery, etc., and also because it passes through about seventy miles of the county of Norfolk, from Downham to Yarmouth, by Thetford, Wymondham, and Norwich.

The valley, or basin of the Lea, as geologists delight to call these alluvial tracts, probably because there is no resemblance between the utensil called a basin and a river-vale, is very picturesque, especially on the Epping Forest side. The elevation is far from considerable, not much higher than the ball and cross on St. Paul's, not nearly so high as Shooters' Hill in Kent; but its slopes are so green, its meadows so fertile, and it is so gracefully feathered, fringed, and intermixed with rows, plantations, and detached groves of trees, and its eminences are so densely covered and crowned with woodlands, that it constitutes a very admirable English landscape.

Its fertility is a source of great wealth to the owners and occupiers, and its gentle domestic beauties are sources of much enjoyment to the traveller who has any taste for rural scenery, and any enjoyment of the quiet unostentatious beauties of nature.

From Bishop's Stortford, as far as Saffron Walden, the scene is varied, the soil is chalky or marly, and the country is less pastoral and more agricultural; but it, viz. this tract, has its beauties as well as its utilities.

About Audley End, as every one knows who has travelled from London to Cambridge *viâ* Epping, the aspects of nature, heightened by art, are very agreeable. Much of this pleasure is lost in these times of utilitarianism, for the rail does not pass through this noble park as the road did and still does.

Cambridge is not a very picturesque county, but, happily for the traveller northwards, he enters it on its most attractive side, between Royston and Linton. Here he will observe the celebrated Granta, whose banks both the Muses and Minerva have selected for their habitation, where their temples are frequented by devoted worshippers. Gogmagog Hills are on the right; and by rail and travelling by express the exquisite chapel of King's College is speedily in view. This architectural celebrity is not a very striking object from the railway; to be seen and appreciated, the interior should be inspected. But our object was the natural produce of the vegetable kingdom, not architecture, even its admired examples, of which this is one of the most eminent.

From Cambridge to Ely, and far beyond it, the country is quite flat, consisting of a part of what is called the Eastern Lowlands; the soil is uniformly peaty, and the surface is intersected by ditches and huge drains, the former filled with stagnant water, and the latter, which receive the contents of the former, flow as sluggishly as the Arar, which Cæsar describes as moving with incredible smoothness, *incredibili lenitate.*

Ely cathedral is a very noble pile, and the view from the station, viz. part of the choir and the south aisles, nave, and transept, is sufficiently imposing to satisfy persons who have seen and admired the chief ecclesiastical structures of England. The west front of Ely cathedral is sublime. The breadth, the elevation, the towers, the entire façade, the whole and the individual parts are extremely grand. The examples of the Norman style, in all their vastness, massive strength, and admirable proportions, are to be seen in the western front. As aforesaid, we were not, like Dr. Syntax, travelling in search of the picturesque, and therefore were content to admire this majestic specimen of medieval architecture from the window of the carriage in which we sat. Many years ago, a couple of days were spent by the writer of this paper in admiration of this cathedral. He then travelled all the way on foot from Peterborough, about thirty miles, solely to see it. The verger of Peterborough cathedral, from one of the towers, showed him the twin towers of Ely, and he presently started, about midday, across the fens, and reached Chatteris late in the evening. The next day reached Ely; and that and the following he spent in surveying and admiring this ancient pile.

The cathedral is well situated, better than most: this in England is the exception, and not the rule. Lincoln is also another very remarkable exception. Winchester and York are extreme examples of the rule, viz. built in hollows overlooked by mean erections. Ely cathedral forms a striking and singular contrast to the meanness of most of the civic buildings here; about thirty or forty years ago these were little superior to the clay- or mud-walled thatched houses of Potton, in Bedfordshire.

After crossing the North or Little Ouse, the railway enters Norfolk, at or near Brandon station, on the old way of the pilgrims to Walsingham. Brandon however is not in Norfolk, but in Suffolk, which wedges itself in between Cambridge and Norfolk at this point. Between this station and Thetford, the ancient capital of East Anglia, the railway passes almost parallel to the river, over a bare, sandy, and mostly barren country, only here and there spotted with trees and cultivation.

From Thetford, an ancient place which exhibits many remains of its former greatness as a political and ecclesiastical capital, now much decayed, the railroad passes through a very extensive heath to Harling Road, Eccles, and Wymondham, a town notorious in modern times for its vicinity to Stanfield Hall and Potash Farm, the respective residences of the miscreant Rush and his landlord, who was cruelly murdered by one of his tenants, Rush aforesaid. The residence of Jeremy, the squire, is an Elizabethan hall of some architectural celebrity.

From Wymondham to Norwich the country improves both in fertility and picturesque appearance.

On another occasion the great expanse of flat, mostly marsh land, between Norwich and Yarmouth, will be described.

We reached Yarmouth, 146 miles from London, by Cambridge, about half-past seven, our journey occupying seven hours and a half; but as there were long stoppages at Cambridge, Ely, and Norwich, and shorter ones at Bishop's Stortford, Wymondham, and Reedham, the time spent in motion did not occupy above six hours.

From our experience of this route, the Great Eastern Railway is entitled to the praise of being a comfortable line to travel by. There was no overpacking of the carriages, nor did any disorderly crowds rush in upon the London passengers, as sometimes occurs on lines of railway which pass through more populous parts of the country.

On the 14th of July our botanizing commenced in this, to us, hitherto unknown part of England, and between Yarmouth and Lowestoft was the locality selected for the first onset.

After crossing the river by the ferry adjoining the Nelson monument, our attention was attracted by the vegetation about Gorleston, which yielded no exotic stray plants. It was rather early in the season for this kind of botanizing.

*Carduus Marianus (Silybum)*, *Petroselinum sativum*, *Onopordon Acanthium*, *Artemisia Absinthium*, and some other half-naturalized or quasi-British species were all that met our notice.

When the point was rounded at the confluence of the river and the ocean, on a very steep grassy bank, but not near a garden, *Saponaria officinalis* was well established. While looking at this well-naturalized British species, some children on the cliff shouted to us that it was poisonous. This we had never heard before. Many plants have the vulgar and unenviable reputation of being dangerous, but this was the first time that deleterious qualities were popularly attributed to this species. *Salvia verbenaca* grows commonly on dry banks here, and in many other parts of our perambulations.

The village of Gorleston is built on the cliff on the south side of the river Yare, which separates it from Yarmouth; and this cliff extends along the shore all the way to Lowestoft, which is about eight or nine miles distant.

Our walk was sometimes on the sandy shore under the cliff, and sometimes on the verge of the cliff, where there is a good path, from which good sea and land views are obtainable, and also good botanizing is afforded in the adjoining fields. The weather was all that could be wished, not too warm, for the day was cloudy, but there was a brisk wind from the east or south-east, the usual sea-breeze.

The crops were wheat, barley, and oats, with here and there a field in turnips not far advanced, and a few fields where the hay crops had been carried off. In one of these, among the Clover, abundance of *Orobanche minor* grew. *Apera (Agrostis) Spica-Venti,* or else its near relation *A. interrupta,* was a rather common cornfield plant; and *Silene anglica* was far from uncommon. Here however it attained to a height and luxuriousness which it rarely reaches in Surrey. *Silene noctiflora* grew beside it here, a species which has rarely or ever appeared with *S. anglica* in Surrey, except in places where both grew accidentally but not naturally. Their seeds were probably conveyed to their place of growth by accident.

*Lychnis Githago* and *L. vespertina* were concomitant species.

*Papaver hybridum* and *P. somniferum* were not quite so plentiful as *P. Rhœas,* but far more so than *P. Argemone.*

*Valerianella dentata?* is another common cornfield plant of this district. *Euphorbia exigua* and *Fumaria officinalis, Knautia arvensis, Lycopsis arvensis, Anagallis arvensis,* and still commoner species, bring up the rear of the above rather brief list of agrarials.

The cliff plants were very scanty, and of the humblest order, considered as objects of rarity, though *per se* (intrinsically) tall and showy. *Linaria vulgaris* was just coming into flower, and *Echium vulgare* was in the perfection of beauty and dignity; *Daucus Carota* was also plentiful and luxuriant. *Reseda Luteola* helped to cover the bare, sandy clay on this part of the coast.

About a mile from Corton, on the Yarmouth side, there is a long, narrow slip of heathy and furzy ground, where several not rare plants grew, viz. *Hieracium umbellatum, Hypericum humifusum, Polygala vulgaris*, of all its colours, white, red, and blue; also *Silaus pratensis, Solidago Virga-aurea, Orchis maculata*, etc.

The seashore plants were far from numerous. *Note.*—There is no saltwater marsh on all the coast between Gorleston and Lowestoft; for some miles beyond the former, the sea, when the tide is at the highest, washes the base of the cliff. Beyond Corton there is a considerable extent of sand-hills, Dunes or Denes, with some grassy flats between the sand-hills and the cliff.

On the wet sand, or on sand wetted with the tidal water, between Gorleston and Lowestoft, about midway, plenty of fine specimens of *Cakile maritima* were procured.

Most collectors know to their sorrow that this plant does not dry very readily, and good examples in this state are not very common. *Salsola Kali* was seen at or near the same part of the shore, and myriads of *Honckeneja peploides*. *Sedum anglicum* was nearly as plentiful as it is on the Welsh mountains in Merionethshire. *Elymus arenarius*, mostly in flower, was also abundant on the dry sand-hills on the shore between Corton and Lowestoft. The Trefoils and Medicks were of the very commonest kinds.

About Corton *Sinapis nigra* grew on the cliff, with *Carduus tenuiflorus* and *Chenopodium Bonus-Henricus* in grassy parts about the village.

On a single spot by the roadside, not more than a quarter of a mile from Corton, on the Lowestoft side of the village, and on a heath which is doomed to enclosure and the encumbrances of villas, there was a fine patch of *Tillæa muscosa* discovered. We have heard that it is to be seen in every bare part of the many heaths in Norfolk and Suffolk, but, though we were on several heaths, we only observed this rarity here, barely half a mile from Corton. This was the only spot where it was seen by us.

Under the cliff, and not far from the lighthouse, *Cynoglossum officinale* and *Anagallis tenella* were detected.

The soil of the narrow slip between the sea and the marshes is a sandy clay, and, as usual when the cliff is either cretaceous or argillaceous, the slope is landwards, and the sea is impinging on the land. The cliff ends or is interrupted by the river and the new town of Lowestoft, which is built on the beach; the old town is on the cliff. The botany of this part of the coast did not turn out so productive as was expected.

Reports reached our ears from more than one quarter that all the exotic species seen at Wandsworth steamboat pier during the last ten years were to be seen at Lowestoft. This may be quite true, though we did not see one of them; and we pored into many odd nooks, waste places, and looked at several rubbish-heaps, without having the good hap to see anything but the common shore, and harbour plants, and not many of them.

Gorleston is a far more likely locality than Lowestoft, because it is a place of much trade, and has intercourse with several parts of the world; but here at Lowestoft we saw nothing uncommon.

After we had been to Lowestoft, a kind correspondent told us that there was good botanizing inland, from this town especially, on one of the "broads" which abound in this eastern nook of England.

About five o'clock we turned our heads to the north, and reached Yarmouth in a very small fraction of the time spent in coming here. The rail is a speedier mode of transit than the marrowbone stage, but it is not so suitable for botanical operations.

On Tuesday, the 15th, St. Swithin's day, we travelled in the same direction as on the previous journey, only through the marshes, and not by the seashore nor on the cliff. Our course was along the right, or Suffolk, side of the Yare, which, above Yarmouth harbour, forms one of the broads so common in the two eastern counties, and appears when it is high water rather more like a lake than a river.

This was by far the most important district of both the counties which we had the pleasure of searching during our late visit. Much could not be done in a few days, but our experience convinces us that it is a rich tract. St. Swithin's day, the 15th of July, also the 19th and 21st of the same month, were spent in this valley of the Yare and Waveney, the results of which are now to be communicated to our readers.

On the 15th our walk was along the right bank of the Yare as aforesaid. All the rivers here are navigable, and are all enclosed by a high bank to prevent the tidal waters and land-floods from overflowing the adjoining marshes; these are mostly meadow or pasture, but there are here and there some cultivated fields.

The broad on the Yare, named Braden, was almost full of *Zostera marina,** not yet in flower nor fruit. *Fucus vesiculosus* and a few other marine plants were attached to the stone-lined water wall; also here and there grew *Artemisia maritima* and *Apium graveolens,* both on the earthen mound and at its base; *Hordeum maritimum* was about equally common; *Glaux maritima* and *Lepidium ruderale* were seen everywhere, the latter on the top or sides of the bulwark, the other on the moist ditch-sides below.

*Note*. Our conviction about the reported growth of *Lepidium latifolium* and *Frankenia lævis* in this neighbourhood, *i. e.* near Yarmouth, is that these two plants are equally uncommon or scarce everywhere on the eastern coast; and furthermore, that *Glaux maritima* and *Lepidium ruderale,* through some oversight of the reporter, were elevated into the place of the very much rarer plants reported. We do not insinuate that the *Frankenia* and the rare *Lepidium* are not there because we did not see them; only an error is suspected when two plants are omitted usually incorporated in such lists, and which are moreover so abundant that they could not have been unobserved.

In the ditches we saw plenty of *Potamogeton pectinatus, P. gramineus,* and other still undetermined species; also *Juncus cœnosus, J. obtusiflorus, J. acutiflorus,* and probably *J. maritimus. Scirpus maritimus* was seen everywhere, and *Althæa officinalis* was far from scarce, but at this period, 15th July, not yet in flower. *Rumex maritimus* or *R. palustris,* possibly both, were among the rarities observed by the river's brink. Of course *R. Hydrolapathum* abounded everywhere, both in the river and in the ditches.

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* We did not know when we saw thousands of acres (square miles?) covered with the long, narrow, floating leaves of this plant, that it was destined to be a successor to the far-famed Sea-Island Cotton of the Southern States of America. We do not know what amount of fibre it yields, nor are there as yet any reliable accounts published about the fineness and tenacity of its tissues, but plenty of the plant is attainable, and at no great cost.

*Ranunculus hirsutus* was seen on the banks and bare places of the meadows, equally plentiful as *Trifolium fragiferum.*

(*To be continued.*)

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## EXTINCT SPECIES.

### *Remarks on the 'Flora of Essex.'*

In preface, E. Fl., p. xvii., it is recorded that "The plants supposed to have become extinct are not numerous," less than a dozen species altogether. (See list, p. 423.) The table of which p. 423 forms a part, begins on p. 417 and ends on p. 427, and consists of three columns, headed respectively—COMMON; RATHER LOCAL; VERY LOCAL. The first column contains the generally distributed plants, the second those more local, and the third those very local; the extinct plants appear in italics, without any mark prefixed. They are the following:—*Crambe maritima, Diotis maritima, Vaccinium Oxycoccus, V. Vitis-Idæa, Statice occidentalis, Sonchus palustris, Ophrys aranifera, Herminium Monorchis, Botrychium Lunaria.* All these are in the very local class.

It would not be worth the ink with which it is written to discuss the question about the nativity or non-nativity of the two species, *Brassica oleracea* and *Crambe maritima,* both of which are said to be "now lost in Essex."

It may be assumed that the Sea Cabbage is the same specifically as the domestic or cultivated esculent, which most botanists take for a fact well or ill founded, for it would not be easy to prove the fact; for centuries would probably elapse ere the wild, open, bitter Cabbage of our coasts changed into the close, sweet, esculent vegetable of our gardens.

There are many distinct varieties or races of the Cabbage, *Brassica oleracea.* There are open Cabbages and close Cabbages. Again, some of the open sorts have crisp, curled leaves, while the leaves of other kinds are flat at the margin. Some of the close or genuine Cabbages are white, others grey, and others of a beautiful dark purple. The instructive part of this history follows; the cultivator sows seeds of the red, white, or grey Cabbage, of the Savoy, of the curly Scotch Kale, or of Brussels Sprouts, or even of Brocoli and Cauliflower, and his seeds produce, in ninety-nine cases out of a hundred, plants which possess the qualities of their parents.

The cereals are quite as permanent as the *Brassica* tribes.

Scientific systematists call all these permanent varieties 'races,' and expect that the unscientific observer should be content with a name without a definition and a history. If races reproduce themselves without variety, what, it may humbly be asked, is the essential distinction between a race and a species? A variety, we are taught, has a tendency to return to the original type or state; and this is one of the means on which botanists rely to test the validity of species. Why are not races called species, as they possess distinctive characters whereby their owners and cultivators distinguish them, and they are permanent or quite as constant as species are? Is there nothing to be learned from this fact?

Has the *Crambe* any higher claims to the title of spontaneous and native than the *Brassica* has? They are both maritime species, and require the sea air and the salt spray or dew to produce them naturally. The Jersey Cabbage, which attains a height of several yards in the moist climate of the Channel Islands, becomes a humble plant of a foot or two high in inland situations.

*Diotis maritima*, one of the presumed extinct Essex plants, is not increasing on our shores. It loves the more brilliant coasts of Southern Europe, Greece, Italy, Spain, and the Mediterranean. It is one of the children of the South, and probably got a settlement on the borders of our misty isles before the establishment of the coastguard, the preventive service of the author of the 'Cybele.' This very rare southern species is to be deemed very lucky in escaping that limbo of British plants, the expurgatorial lists appended to the 'London Catalogue.'

The two Epping Forest Vacciniums may be rediscovered. Has the forest been the residence of any observant local botanist since Mr. E. Forster's decease?

The same hope may rationally be entertained about the two missing Orchids. The authors will see in the 'Phytologist' notices about the reappearance of these plants in other places after having been missing above half a century.

The rare *Sonchus* is likely to reappear in its old haunts near Blackwall. The marshes about West Ham, Plaistow, and Barking, where it was seen not above twenty years ago, may grow it again. The ditches are of necessity cleared out now and then, and the locality consequently must be utterly or temporarily destroyed, but some roots, or young plants, or seeds, might lurk for years in the *débris* of the rank vegetation, and in course of time surmount all the obstacles to their development.

*Statice occidentalis* is on the coast of Kent associated with the Sea Cabbage, *Brassica oleracea;* and as there are no chalk rocks on the Essex coast, where both these associates find a congenial home, they may be equally stragglers, and never were true natives of Essex. The only real natives lost may be but two, *Crambe* and *Diotis.*

In the table of adjacent distribution, or lists of plants found in the contiguous counties but not in Essex, why is not Middlesex entered? As much is known about its native plants as about those of Kent. The following remarks are most respectfully submitted to the learned authors:—

1st. *Sonchus palustris, Senecio paludosus,* and *S. palustris,* are enumerated in the recent 'Cambridge Flora' as among the plants that are probably lost in the county of Cambridge; also *Lythrum hyssopifolium, Scleranthus perennis, Cicuta virosa, Œnanthe silaifolia, Pyrola rotundifolia,* etc., are problematical Kentish plants: hence the botany of Essex, when compared with its northern and southern neighbours, has no cause to be disconsolate on account of her loss, nor to be ashamed of the small number of her vegetable offspring.

2nd. Why is *Salvia pratensis* called a native in Kent, and an alien in Suffolk? Again, where is the natural Kentish locality of *Buxus sempervirens?* Boxley, in Kent?

There is a fallacy in the syllogism which proves, or attempts to prove, the growth of the Box about Boxley, in Kent, which reminds the readers of Shakespeare of Captain Fluellin's famous argument about Henry V. and Alexander. There is a hill at Dorking, in Surrey, and a hill at Boxley, in Kent, and there is a river near both, and there are Box-trees near Dorking; but alas! here the argument breaks down; the syllogism wants a loop: there are no Box-trees on Boxley Hill, in Kent.

Where do *Primula farinosa* and *Orchis hircina* grow in Suffolk? Where do *Malaxis paludosa* and *Cyperus longus* grow in Kent?

Again, *Linum perenne*, *Wahlenbergia*, and *Carex extensa*, are found in Kent, *testibus* modern authorities. (Note to p. 438.)

*Linum perenne* has been seen in Kent, if we may trust Mr. Cowell's work on the botany of South and East Kent.

*Symphytum tuberosum* is, in Hertfordshire, probably in as genuine a locality as that of the Essex plant of the same genus.

*Stratiotes aloides* has long been known as a Surrey plant; it appears in Professor T. Martyn's list, compiled a century ago. This plant of the eastern lowlands still exists in Surrey.

Lastly. The four species presumed to be peculiar to Essex have all been found south of the Thames within less than ten years.

*Lathyrus tuberosus* is growing now at Chelsea; the original is from a suspicious station, but the Essex plant is not quite free from this imputation.

*L. hirsutus* has been seen in other counties, and may be seen again.

*Galium Vaillantii* is usually called a variety of *G. Aparine*, and a variety which has often been collected at Wandsworth steamboat pier. It is believed that *Bupleurum falcatum* is another of the Wandsworth novelties.

What do the editors mean by the following note on pp. 275, 276:—"*Euphorbia Esula* was found by Mr. Dale in Essex, if Buddle's Herb. is sufficient authority for considering this the rough-fruited Spurge of Ray's 'Synopsis,' p. 312"? Smith states without hesitation, not *doubtfully*, as the authors of the 'Essex Flora' maintain, that the plant found by Mr. Dale in Essex and by Dr. Robinson in Yorkshire is var. β of *E. stricta*; and Mr. Babington will tell them that *E. stricta*, Sm., is equivalent to *E. platyphylla*, Koch, an annual plant which is widely distributed in cornfields in the south of England.

*E. Esula* is a perennial and somewhat woody species, with a very long root, and with leaves not much wider than those of *E. Cyparissias*, but of a different shape and colour.

The plant found by Mr. Dale and Dr. Robinson is correctly enough described by Hudson as having a five-divided umbel, and also by Parkinson, p. 187, No. 9, as having a small root. *E. Esula* has an umbel of numerous branches, and a very long, perennial, milky root.

It would oblige at least one reader of both the 'Flora of Essex' and of the 'Phytologist' if the authors would tell him what Buddle's 'Herbarium' has to do with the question? Did the ancient owner or any owner of this celebrated collection write near the specimen, assumed without any evidence to be ***E. Esula,*** the name ***Esula minor,*** or ***Tithymalus pinus,*** or ***T. Pinea,*** or ***T. Pithyusa?,*** the ancient names of this Spurge, which is not in Ray's 'Synopsis,' though he knew the plant, and describes it in Hist. Plant. p. 867. It was not recognized as English till about a hundred years ago.

We are indebted, I suspect, to E. B. for this novelty, which now passes muster as a doubtful native, even by the critical author of the 'Cybele.' A very slight study of the history of the species would have satisfied any one even less sceptical than he, that it is still without any sponsor for its ever having been found truly wild.

Smith very prudently quotes Lightfoot, who merely relates that *E. Esula* is "said to have been found growing plentifully on a bank to the south of Lord Abercorn's house, about a mile from Edinburgh, by Mr. Charlesworth; but as we have seen no specimens, we can determine nothing concerning it." ('Flora Scotica,' vol. xi. p. 1135.) Smith's locality is thus described:—"In a wood near a rivulet at Abercorn, thirteen miles from Edinburgh; Mr. B. Charlesworth." This will remind the readers of Shakespeare, of Falstaff's twelve rogues in buckram. (Comp. E. B., vol. xx. p. 1399.)

There cannot be much doubt about the Essex plant collected by Dale, and called ***Tithymalus verrucosus*** by Parkinson, Ray, and Hudson; but whatever it be, it is not ***E. Esula,*** which differs *toto cœlo* from all the descriptions we have of ***T. verrucosus.*** No two Euphorbias can be more unlike in external appearance, duration, and locality. It is hoped that the learned editors will explain their own meaning.

About ***Bupleurum falcatum*** the authors of the 'Essex Flora,' p. 134, appear to be at issue with Mr. E. Forster. The latter gentleman believes it was discovered previously by "Gerard and others." Gerard indeed states that he found ***Bupleurum angustifolium,*** Monspel., growing "among the bushes about Bieston Castle, Cheshire;" not an unlikely place. Parkinson affirms that both *B. angustifolium,* presumed to be ***B. falcatum*** of modern authors, and *B. latifolium*, are found in divers places in our land. (Park p. 578.) Neither of these ancient authors name Essex as one of its localities.

The description in Ray's 'Historia Rei Herb.' agrees sufficiently with the Essex plant; and the figure in Gerard, which has not the root-leaves, is characteristic enough, about as good a representation as could be expected.

Absolute perfection is unattainable even by the best artists; they sometimes fail in their attempts to represent the natural objects portrayed in their works; and it is not altogether inconceivable that Mr. E. Forster might have, unknown to himself, allowed his kind feelings to have been shaded, and his sound judgment warped, by a very slight tinge of jealousy, when he understood that a younger member of the brotherhood had made a discovery which would entitle him to a share of the botanical honours hitherto paid to the family of the Forsters, and to himself as its now sole remaining representative. His nice sense of honour might have been blunted, and the wish that there had been a previous discoverer, may have caused a search in Gerard and other ancient authors.

Again, the excellent author of the 'Flora of Essex' may have felt for the honour of his compatriot, etc.; and this, the very slightest shade of partiality, may have been the thin film or mist through which he was unable to see the resemblance of Gerard's figure to the plant of his county, discovered by his friend. If the cut be like that of some other species, as he says it is, that other species should have been forthcoming. Alas, for poor frail human nature! it is easy to give honest and disinterested counsel; but those who know the many crooked ways in which humanity often wanders, can sympathize with those who turn aside from the straight and narrow path.

One of the most curious of the omissions of the authors of the 'Essex Flora' is that of the Colchester locality for *Muscari racemosum*, or whatever the sages learned in the laws of botanical nomenclature may please to name it.

The locality is "the ruins of the old town wall, not far from St. Mary's Church." They should not have been frightened at this fact as an impossibility or absurdity, for though it grows *here* on the ruins of the wall, it is not a mural plant like the Wallflower. The wall of Colchester, like most Roman walls, is very wide; here it occupies a larger breadth than usual, and the pretty Grape Hyacinth is clustered or cosily nestled on small grassy spots surrounded with fragments of the ancient Roman masonry.

Another curious reason is given, p. 399, relative to the nativity of *Cystopteris regia* or *C. alpina*—or, if you please, learned reader, consult 'Index Filicum.' After informing the lovers of Ferns, and all else whom it may concern, that the plant was observed there nearly a century ago (not quite, only about eighty-five years), Mr. T. Moore says, "The plant is at the present time, unfortunately, nearly destroyed by repairs, though it exists in more than one station in the neighbourhood." Under these circumstances (*inter alia*), the destruction of its habitation by repairs, and its finding several other stations, it cannot be considered a native British plant! Generous critics!

*Polystichum lobatum* used to be the commonest of all the British Ferns in the lanes about Abridge, Lamborn, Chigwell Row, and other parts of the Forest near the Roding. Some of the ancient members of the fraternity will thank the authors for giving a name and a locality to a species which was received without suspicion half a century ago, long ere *P. angulare* came into prominence as a genuine species; but recently it has been discarded.

Query, is not *Lolium tenue* a native of Essex?

Page 226. *Note* on the two forms of *Bartsia Odontites*, one with a fastigiate (erect, bushy habit), the other with widely spreading branches (spreading horizontally); the former found, but not exclusively, in cornfields, the latter by waysides. This is presumed to be the typical plant.

It would be very edifying to some non-critical readers to learn what are the characters of a typical species! The one has erect, close branches, and grows in cornfields; the other has spreading branches, and grows by waysides. How do these learned men know that this is the typical species? Why is not the other one a typical species? Why is not each a typical species? How have the authors learned that there are not two typical species, one with divaricate, and the other with fastigiate branches; one having its home in cornfields, where the situation might cause it to assume a closer habit, and the other by waysides and wastes, where it has more room to expand? One is said to be a spring or early summer plant, and conjectured to be *B. verna* of Reichenbach. Query: Is *Adonis autumnalis*, which flowers in early spring, in the corn-fields in Kent, and also rarely during summer, and which ripens and scatters seeds which flower in the autumnal stubblefields, to be split into two, and the mothers of the early flowering plants named *A. verna*, and the daughters, or descendants, which sometimes flower in autumn, but the most of them in spring, to retain the original name? Which will be the typical species?

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## Review.

*The Canadian Naturalist and Geologist, etc.* Vol. VII. Part 2, April 19th, 1862, and Part 3, July 17th, 1862.

The first article in No. 2 of this useful periodical is called "Notes on the Flora of the White Mountains, in its Geographical and Geological Relations," by J. N. Dawson, LL.D., F.G.S.

These mountains, which culminate both in their southern and northern extremities, are part of the great Appalachian chain, which extends from the north-east to the south-west of the United States, and is the loftiest mountain-range in North-Eastern America.

Their elevation is estimated at upwards of 6000 feet above the coast-line. They form the great ridge, separating the sources of the rivers which flow down the valley of the Mississippi into the Gulf of Mexico, from those which flow eastward into the Atlantic.

That part of the ridge or chain, viz. the White Mountains, (their name is given them from their covering of snow, which is not perpetual, but invests them during three-fourths of the year,) is in the State of New Hampshire.

The following plants were collected during this excursion:—

*Oxalis Acetosella*, a species of Nova Scotia, a British plant, associated here with *Aster acuminatus, Solidago thyrsoidea*, and another interesting denizen of the British Isles, *Listera cordata*, the pretty Mountain Twayblade.

Close to the snow-line the botanizing party observed *Cornus canadensis* and *Linnæa borealis*. The latter is reported to have a vertical range of 4000 feet in this region.

"Conspicuous," the author remarks, "among the hardy climbers are two coarse and poisonous weeds of the river valleys, that look like intruders into the company of the more dwarfish alpine plants; the Cow Parsnip (*Heracleum lanatum*) and the White Hellebore (*Veratrum viride*). Both of these plants were seen struggling up through the ground at the margin of the snow and climbing up moist hollows almost to the top of the precipices. . . . Less conspicuous and better suited to the surrounding vegetation were the Bluets (*Oldenlandia cærulea*),—now in blossom here, as they had been months before in the low country,—the dwarf Cornel (*Cornus canadensis*), and the Twin-flower, *Linnæa borealis*. . . . One of the most interesting was the Northern Painted Cup (*Castilleia septentrionalis*), a plant which abounds on the coast of Labrador and extends thence through all Arctic North America to the Rocky Mountains, and is perhaps identical with the *C. sibirica* of Northern Asia, and the *C. pallida* of Northern Europe."

Several passages about the origin or geographical relations of the plants on the White Mountains, separated so far from what some would call the centres of vegetation, have been marked for extraction; but, on second thoughts, it was determined that the space they would occupy might be filled with matter more readable, and more intelligible to our readers, than hypotheses on the origin and distribution of species.

After stating that difference of altitude produces no sensible change in the species, except that of shortening the stem, the author remarks that the tendency of the "struggle for existence" is to confirm rather than to modify the characters of the species. See page 97.

Another brief extract will show that Dr. Dawson, the author of the "Flora of the White Mountains," is not an implicit believer in the Darwinian theory, which professes to explain all the mutations or variabilities of plants on the hypothesis of a necessary struggle for life; for example, page 99, he says that *Epilobium alsinifolium*—which varies in foliage, and according to some botanists presents two typical forms, viz. one with nearly entire and the other with toothed leaves—has obtained the unenviable notoriety of ambiguity. "Thus," our author remarks, "we find that this little plant has been induced to assume a suspicious degree of variability; yet it is strange that both species or varieties are found growing together, as if the little peculiarities in the form of the leaves were matters of indifference, and not induced by any dire necessities in the struggle for life."

Every philosophic naturalist will admit with our author the great difficulties that confessedly exist on the question about the distribution of plants, and some would not be sorry if these *difficulties* were more generally admitted to be palpable impossibilities.

Some of the readers of this interesting essay on the Flora of the White Mountains, one at the least, might wish to have the following quotation made less difficult (both logic and grammar are obscure), viz. "These questions," the author continues, "are to be worked out, not merely by the patient collection of facts, but by a style of scientific thought, very much above those [persons?] which on the one hand escape such problems by the supposition of multiplied centres of creation, or, on the other, renders their solution worthless by confounding races due to disturbing causes with species originally distinct." What does the doctor mean? Does the pronoun 'which' refer to facts or to persons? Is the style of scientific thought above the reach of the comprehension of either of the two classes? The grammatical difficulty would be removed by substituting *who* for *which* after 'those,' if his meaning be that a higher order of intellect is necessary for the solution of these problems than is enjoyed by those who suppose that there have been multiplied centres and successive periods of creation, or, on the other hand, etc. *Those which* and *their* refer either to persons or to things, to 'facts' or 'style of scientific thought,' 'problems,' etc. Would the author condescend to enlighten our darkness? We would not hesitate to confess, as part of our scientific creed, that we are *not* believers in multiplied centres of vegetation, nor in simple nor single centres either; and again, we do not believe that the glacial theory, as it is called, will satisfactorily account for the distribution of plants. There are several plants common to the Scottish, the Scandinavian, and the Swiss Alps; on which of these now elevated stations did these plants originate? A Scotchman would, if only out of sheer patriotism, aver that they all had their origin on the Grampians, or on Ben Lawers, or on Ben Cruachan. A Norwegian, like a Swede, would maintain that his country was first created, and consequently first planted with trees and covered with vegetation; that it was indisputably the site of the ancient Paradise, before the world was turned topsy-turvy, as some learned men say, by the Deluge; and that the Dovrefeldt was the cradle of all alpine species in the world.

Who can answer a question involved in such obscurity as the origin of all things confessedly is? There are similar difficulties besetting facts which our daily experience presents to our observation. Several plants have recently been observed on Wandsworth Common, plants that have never been suspected of vagabondizing or migratory propensities: for example, *Equisetum Drummondi, Osmunda regalis, Lycopodium inundatum, Drosera rotundifolia,* etc. These have migrated within the last twenty years, and neither the *unde,* 'whence,' nor the *quomodo,* 'how,' has been satisfactorily ascertained. Their case is inexplicable by the glacial theory. Even this famous theory may be as palpable a myth as an indefinite number of centres of creation, or a successive multiplication of new species believed by some.

There in this number of the 'Canadian Naturalist' an article on the failure of the apple-tree in the neighbourhood of Montreal —a fact bewailed as a domestic calamity and a commercial misfortune.

The author closes his essay on this important subject with the question, "Shall we ever see Montreal producing the fine fruits that it did twenty-five years ago? The markets were then filled with the finest varieties of the Plum and the Pear, and a considerable quantity of the Peach and Apricot produced on the open walls. Now there is no such fruit to be seen as a Bon Chrétien pear, an autumn Bergamot, or a Burmese spruce; nor a luscious Bolman's Washington plum, nor a greengage, nor even a coarse magnum-bonum."

It may be said, to the credit of the orchardmen of Britain, that the pear has lately been marvellously improved, both in flesh and flavour. Pears are now eatable; they are both meat and drink, and well supply the place of wine after dinner; they cool the system while they quench the thirst. The apple has been suffered to degenerate; it may be productive in the cider-mill and very useful in the kitchen, but its reputation as a meritorious dessert-fruit is lost; it is hardly equal in quality to a good turnip.

From the annual report of the Natural History Society of

**Montreal, the following gratifying extract is made:—" A committee of the members is now deliberating on the 'disease of the apple-trees in the island of Montreal,' a subject of great practical importance." It is earnestly to be wished that the Royal Horticultural Society of London would condescend to patronize the improvement of this most useful fruit.**

## BOTANICAL NOTES, NOTICES, AND QUERIES.

### ANSWERS AND NOTICES TO CORRESPONDENTS, WITH REMARKS, NOTES, QUERIES, ETC.

1. **WARRINGTON FIELD NATURALISTS' SOCIETY.**—The rules of this Association, formerly announced in the 'Phytologist,' and now before us, are here reproduced for the benefit of our readers in general, believing, as we do, that the example of Warrington may be followed in many other districts of the kingdom, and that there will be similar societies organized wherever two or three naturalists are found who are willing to co-operate on as easy terms as our zealous friends of Lancashire.

Special attention is directed to the first rule, which defines the operations of the Society, and shows its comprehensive character.

The means whereby great results are attainable may be very humble, but the objects to be realized are great and lofty; a few earnest, liberal-minded men will, by their energy, stir up the emulative activities of many, and their movement may conceal the germs of great and permanent benefit to their contemporaries and to posterity.

The efforts of zealous men to close the gin-shops should not be ridiculed; their object is a good one, though the means by which they seek to reach it are not universally approved. But there cannot be two opinions about the prudence and desirability of such institutions as that above mentioned, the result of which will be the removal of the causes which tempt men to resort to these haunts, and to travel willingly on the road to ruin.

The rules themselves will sufficiently evince the good sense, liberality, and benevolent objects of the Society, and they are now submitted to our readers without any further preamble.

*Rules of the Warrington Field Naturalists' Society.*

"1. That this Society be called the 'Warrington Field Naturalists' Society,' its object being, by social meetings, by the examination and interchange of specimens, by discussions on subjects of Natural History, and by excursions into the country, to encourage the practical study of Natural History in all its branches.

"2. That the officers of the Society be a President, a Treasurer, and a Secretary, who shall be elected by ballot at the annual meeting.

"3. That every candidate for membership shall be elected by ballot at a meeting of the Society, and, on paying the entrance fee, shall become a member.

"4. That in the event of any expense having to be incurred which the entrance fees may not cover, it shall be defrayed by (voluntary) contributions from the members.

"5. That the entrance fee be sixpence.

"6. That a class of honorary members be admissible, in which shall be included any persons distinguished by their attainments in Natural History, or who have rendered valuable services to the Society; and that such honorary members be elected by a majority at a general meeting, and have all the privileges of ordinary members.

"7. That the members of the Society shall hold Field Meetings at convenient seasons, in the most interesting localities, for investigating the natural history of the district. The place of meeting to be fixed by the members, and notice of each excursion to be posted in the Society's meeting room.

"8. That the ordinary meetings of the Society be held at the Mechanics' Institution, on Saturday evenings, at eight o'clock.

"9. That the annual meeting be held during the month of April, when the report for the past year shall be received, and officers elected.

"10. That at the annual meeting the President be requested to favour the Society with an address."

2. The doings of another Association will soon be published in these pages. Thanks to our worthy correspondent Mr. "W. G.," another number of the manuscript magazine of the Glasgow Naturalists' Society has just reached us. The two societies of Glasgow and Warrington are as alike each other as twin-sisters; although each society has its own appropriate features, and its modes of operation (*modus operandi*), they are not copies of each other.

The fourth volume or number of the manuscript magazine is announced. "Our fourth volume, we anticipate, shall contain the first of a series of papers on the Flora of Glasgow and vale of Clyde, land and freshwater shells, ornithology, Coleoptera, etc., the materials for which are being busily collected at present, which I shall gladly send you, if spared, early in the spring."

*From the Glasgow Naturalists' Manuscript Magazine.*

"WELWITSCHIA MIRABILIS.—A new plant, called in honour of its discoverer *Welwitschia mirabilis*, has been described by Dr. Hooker. Its place of growth was near Cape Town, South Africa. In appearance it is said to be a stunted trunk, two feet in height, with two leaves, which, though the cotyledons, are persistent during the life of the plant.

"A paper read before the Society of Arts by E. C. C. Stanford, enumerates a number of substances which may be extracted from seaweed, chiefly the large *Laminariæ*. He has procured ammonia, naphtha, colouring matter, an essential oil, iodine, potash, etc. The utility of his discoveries in an economic point of view is probably small.

"THE POTATO DISEASE.—Dr. De Bary, of Frieberg, has recently published a pamphlet containing an epitome of all that is known regarding the potato disease, and gives the result of his own observations. He finds that the theory of its being due to parasitical growth is correct. A seed of the parasite when placed on the leaf, he finds, will penetrate the tissue in twelve hours, and in sixteen hours it bursts through the leaf, and is ready to reproduce itself at the rate of 19,620 zoospores for every square line of its surface."

Our northern friends need not be told that we shall give their magazine a cordial reception, for they know this; but their good example may be earnestly commended to the imitation of their southern brethren.

3. ENTEROMORPHA HOPKIRKII.—Our fair and obliging correspondent, of Dorset Gardens, Brighton, sent the following note on *Enteromorpha Hopkirkii*.

Our Huddersfield correspondent, "C. C. P. H.," is hereby informed that the specific name of the above Algal was "bestowed as a tribute of grateful respect to Mr. Thomas Hopkirk, author of 'Flora Glottiana,' from whom Mr. M'Alla had received kindness while resident in the neighbourhood of Belfast."

4. THE LONDON FLORA.—Many kind offers of help in compiling a list of species in the metropolitan counties have arrived from time to time, and the following have been sent since our last issue:—

"18, Shawfield Street, Chelsea, Sept. 4, 1862.

"Sir,—Allow me to offer you the following habitats of the rarer plants, which I have met with in this neighbourhood during the last two or three years. A note from 'J. W. C.' in your last led me to suppose that such hints would not be unacceptable.

"1. *Impatiens fulva*. Banks of Thames (Surrey side) between Putney and Hammersmith Bridges. Sept., Oct., 1861.

"2. *Mercurialis annua*. Gravel-pit near south entrance of Battersea Park. Aug., Sept., 1862.

"3. *Teesdalia nudicaulis*. Wimbledon Common. May, 1862.

"4. *Butomus umbellatus*. Paddington Canal, near Kensal Green Cemetery. July, 1862.

"5. *Scutellaria galericulata*, with *Butomus umbellatus*, as above. July, 1862.

"6. *Scutellaria minor*. Sparingly in damp places on Wimbledon, Wandsworth, and Clapham Commons, and on Hampstead Heath. June, July, 1862.

"7. *Linaria Cymbalaria*. Very general on walls in Battersea and Chelsea. June, August, 1862.

"8. *Thalictrum flavum*. Ditch by Thames (Surrey side) near Hammersmith Bridge. July, 1862.

"9. *Genista anglica*. Wimbledon Common. June, 1862.

"10. *Oxalis corniculata*. In waste ground about Chelsea College and West Brompton. June, July, 1862.

"11. *Melilotus leucantha*. Wandsworth Common, by railway. July, 1862.

"12. *Trifolium subterraneum*. Wandsworth Common. June, 1862.

"13. *Orobus tuberosus*. Wimbledon Common. May, 1862.

"14. *Malva rotundifolia*. Waste ground, by walls near Putney Heath, Chelsea College. July, 1862.

"15. *Antirrhinum Orontium.* Waste ground near Chelsea College. July, 1861.

"16. *Veronica Buxbaumii.* Wimbledon and other Commons, waste ground. July, 1862.

"17. *Silene noctiflora.* Waste ground in Chelsea College. 1861.

"18 *Achillea Ptarmica.* Wimbledon Common. July, 1862.

"I will not trespass further on your valuable space this month except to ask one or two questions:—

"Is the *Drosera rotundifolia* still found on Wimbledon Common and Hampstead Heath?

"Can any one inform me of any habitat of the *Villarsia nymphæoides* in the neighbourhood of London?

"I would just mention that I have found *Epilobium angustifolium* this year in considerable abundance near Scarborough, Yorkshire, and about Caistor, in the North Wolds of Lincolnshire; I have also seen it in woods in the neighbourhood of High Wycombe, Bucks.; so that it need not be considered a rare plant. About High Wycombe I have found the following rare plants in profusion:—*Linaria minor*, *L. Elatine*, and *L. spuria*; *Epipactis latifolia*; *Iberis amara*; *Anagallis cœrulea*; and *Gentiana Amarella.* The *Daphne Laureola* grows abundantly in the woods about Little Marlow, but I have never seen *D. Mezereum* there. "J. Britten."

"When you were here you said something about publishing a list of the metropolitan species. Should you ever do so, some of our Southgate localities may be worth insertion, as of *Crocus vernus*, *Convallaria majalis*, *Vaccinium Myrtillus*, *Adoxa Moschatellina*, etc., of which I can give you more particular descriptions should you wish. "F. W.

"*Arnos Grove, Southgate.*"

5. Euphorbia Esula.—Several weeks ago, our friend and correspondent "W. P." informed us that he had seen the above-named Spurge, *E. Esula*, on the north bank of the North London Railway, at the station near Kilburn, about two miles beyond Hyde Park Corner, on the Edgware Road. The plant is there still, and likely to remain, for, like *E. Cyparissias*, when it gets a good hold of the ground it is not very easily extirpated.

It is recorded here, not because it has any claim to be regarded as a British plant,—though, like many other unsuspected *aliens*, it has got a footing in the floras of our native land,—but with the object of asking the many botanists who read the 'Phytologist,' if they or any of them know any genuine locality for this interesting stranger. *Note.* Monastic ruins, abbey walls, and railway banks are not generally accepted as reliable habitats, but all such will be recorded; the plant may be and is doubtless of spontaneous growth, though its *nativity* be justly questioned.

Both Gerard and Parkinson describe and figure this species:—"12. *Esula major germanica*, Great Marsh Spurge, Park. 188, fig., p. 189. The twelfth groweth in many places of Germany, and as Lobel saith in his Observations, in a wood nigh unto Bath, very plentifully."

Smith's description of *E. Esula* is very fair, only he describes the root as being "woody." The fruit is slightly rough, and with four lobes.

In Dr. Johnson's 'Flora of Berwick,' vol. ii. p. 289, *E. Esula* is briefly described and localized thus:—"Birgham Haugh, Mr. R. D. Thomson; *E. Cyparissias*, found on the walls of Hulne Abbey, but doubts are entertained of its being indigenous." (Thompson's 'Flora of Berwick,' p. 5, note.)

Gerard's figure (see Johnson's Ger. p. 499) is good:—"6. *Tithymalus pineus*, Pine Spurge. The sixth is like the former, *Cyprus Tithymale* (*E. Cyparissias*), in flowres, stalks, coats, and seeds, and differeth in that this kinde hath leaves narrower and much smaller, growing after the fashion of those of the Pine-tree, otherwise it like." (So in Ger. Em.)

Park. 192, *Tithymalus Pinea*, Pine Spurge.

See 'Phytologist,' vol. v. p. 194, where the plant is described as naturalized on the walls of Hulne Abbey, Northumberland.

6. CONVOLVULUS SEPIUM, *flore carneo*.—"You shall have a full, true, and particular account of the Pink Convolvulus, which I believe Mrs. B. pointed out to you five years ago, some time before it was reported from Lancashire. I hope you will give the lady's history and description of this interesting novelty a prominent place in the 'Phytologist.'"

Query, has not a notice of this variety appeared already in our pages? See vol. ii. p. 252, N.S.

7. Our obliging friend "H. T.," who sends a list of Hants. species not in Dr. Bromfield's list, is hereby requested to accept our thanks for what has been received and for what is promised. The list in hand will be printed as soon as there is room for it, possibly before Christmas.

8. ZOSTERA MARINA, the recently discovered substitute for Cotton.—The readers of the daily and weekly press, and especially such as are interested in textile fabrics, have been kept for some time on the tenterhooks of expectation. Several weeks ago a new material was submitted to an eminent cotton-broker, and obtained his approbation. Some probably were a little startled when they were told that the fibre was to be obtained from a plant common enough on our seashores, viz. *Zostera marina*, Grass-Wrack. Several years ago, probably four or five, when material for paper was in nearly as great request as Sea-Island Cotton, a notice appeared in this journal of a successful application of the fibrous part of Grass-Wrack to the paper manufacture. We have never heard what progress was made, and probably the economical element was not present—or, in simple terms, it did not pay. We will not venture to affirm that, as its practical employment for paper-making was a failure, its substitution for the cotton fibre will also be unsuccessful; but it is to be hoped that the good men and fair women of Lancashire will not have to starve till the spinning-jenny and steam-looms be set to work on the fibre got from *Zostera marina*, "Sea Grass-Wrack."

### TRIFOLIUM REPENS. (*White Clover; Dutch Clover.*)

Please to inform me whether the seed of this plant was originally brought from Holland, and, if so, when was it first sown in *Ireland* or England? We have the *broad Clover*, or Meadow Trefoil (*Trifolium pratense*), and the *Hop Clover*, all common in our fields, as well as the *Dutch Clover;* but I am at a loss to find which of these was the earliest noticed by our writers on plants. In referring to Miller's Dictionary, by Martyn, I find the following upon *Trifolium repens* (called *Dutch Clover*):—"It does not seem to be ascertained when this white Trefoil came first into cultivation here, but it seems to be of *late date*, for it is not mentioned by Gerard, Parkinson, or Ray, as an agricultural plant in this country, nor by any of the writers on husbandry of the seventeenth century." I agree with "Hibernicus" in believing that St. Patrick did not gather a leaf of this plant to illustrate his doctrine of the Trinity, but it must have been some other Trefoil. As the *Watercress* was, according to Moryson and Spenser, called *Shamrock* early in the sixteenth century, what is there to show that St. Patrick might not have taken a leaf of this plant and referred to the *three terminal* leaves to illustrate his doctrine?

In Phillips's Dictionary I find "Dew-grass, a sort of herb." What is this? HARRIET BRISLY.

### PULMONARIA OFFICINALIS.

The following precise description of the locality, etc., of the above plant is extracted from a letter, dated May 14th, 1862:—"*Pulmonaria officinalis* grows in Burgate Wood, in the parish of Burgate, in the county of Suffolk. I think there can be no doubt about its being a genuine wild locality; for the plant is plentiful, it grows far in the interior of an extensive wood, and has as much the appearance of being truly wild as any of the plants near it. It is now more luxuriant than usual, in consequence of the underwood having been recently cut—a fact which I noticed last September when I was in the wood. The specimen I sent to you was, I believe, one of the smallest that could be found. "CHARLES JOSEPH ASHFIELD."

"*Knowsley Street, Preston.*"

### FLEUR-DE-LIS.

I have often thought that the figure we find in old paintings and in sculptures of this flower is somewhat like the head of our ancient spear, and also somewhat like a Trefoil (representing the Trinity); and I have sometimes doubted whether the figure was originally intended for a *fleur-de-lis*, as it is not very similar to the Iris. In the 'Etymological Compendium' by William Pulleyn, he has the following:—"Fleur-de-lis on the Mariner's Compass. Those who have seen the mariner's compass, or indeed a drawing of it, must have observed the fleur-de-lis at the point of the needle. From this circumstance the French have laid claim to the discovery; but it is much more probable that the figure is an ornamental cross, which originated in the devotion of an ignorant and a superstitious age to the mere symbol." It appears that the fleur-de-lis was introduced into the arms of France in the reign of Clodoveus; previous to that period they had three toads on a yellow field. Topsell says, that Clodoveus changed them into the fleurs-de-luce as arms sent to him from heaven. I think the question—What was the true fleur-de-lis? and whether the first figure called a fleur-de-lis was a flower or not,—is worth an answer; and I hope some of the contributors to the 'Phytologist' will satisfy us on this subject. S. B.

### PLANTS NOTICED BY EARLY WRITERS.

In Richard Carew's 'Survey of Cornwall,' a very interesting work written in the beginning of the sixteenth century, he notices some of the plants which were found in that country as follows:—"Of herbes and rootes for the pot and medicine, Cornishmen enjoy a like portion, in proportion with other shires, which somewhere also receiveth an increase by the sowing and planting of such as are brought thither from beyond the seas. The like may bee sayd of rootes and sallets for the table, save that (I suppose) Cornewall naturally bringeth forth greater store of *Seaholm* and *Sampire* then is found in any other county of this realme. The *Seaholm* roote, preserveth either in syrrup or by canding, is accepted for a great restorative. Some of the gaully grounds doe also yield plenty of *Rosa solis*. Moreover, Nature's liberall hand decketh many of the sea-cliffes with wilde *Hissop*, *Sage*, *Pelamontayne*, *Maiorum*, *Rosemary*, and other such like well-sounding herbes.

"The women and children in the west part of Cornwall doe use to make mats of a small and fine kinde of bents there growing, which, for their warme and well wearing, are carried by sea to London and other parts of the realme, and serve to cover floores and wals. These bents grow in sandy fields, and are knit from ouer the head in narrow bredths after a strange fashion."

He also of course speaks of metals, which, although not properly within the scope of the 'Phytologist,' is so interesting that I give the following passage to enable your readers to draw a contrast between *now* and *then*; *now* showing a copper mine which yields for £1 paid a return of £420, *then* as follows:—"Touching metals, copper is found in sundrie places, but with what gaine to the searchers I have not beene curious to enquire, nor they in haste to reveale. For at one mine (of which I tooke view) the owre was shipped to bee refined in Wales, either to save cost in the fewell, or to conceal the profit." H. B.

### LATHRÆA SQUAMARIA.

Gerard says of *Lathræa squamaria*, "It groweth likewise neere Harwood, in Lancashire, a mile from Whanley, in a wood called Talbot Banke." Mr. George Ward, an aged botanist, residing near Blackburn, informed me last summer that he had found this plant about thirty-five years since, between Whalley and Harwood, about a mile from the former place, and near to the river Calder. I am happy to be able to add my testimony to that of the above-named botanists of the seventeenth and nineteenth centuries as to the existence of the *Lathræa* in the localities referred to by them. In April of the present year I found the plant growing abundantly.

C. J. A.

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### *Communications have been received from*

C. J. Ashfield; M. A. Walker; John Peers; Walter Galt; F. Walker; H. Trimen; T. Moore; W. Pamplin; Dr. Prior; Sidney Beisly; H. Beisly; John Sim; J. Britten; W. Ashley; James Lothian; T. R. A. Briggs; Walter W. Reeves; W. P.; L. C. Miall.

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### RECEIVED FOR REVIEW.

*Manuscript Magazine of the Glasgow Naturalists' Society.*
*James Lothian's List of Dutch Flower-Roots*, 1862.

31 MH63

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# INDEX FILICUM:

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## THE GENERA,

AND AN ENUMERATION OF

## THE SPECIES OF FERNS,

**With Synonyms, References, etc. etc.**

BY

THOMAS MOORE, F.L.S., F.R.H.S.,

AUTHOR OF 'THE HANDBOOK OF BRITISH FERNS,'
'THE FERNS OF GREAT BRITAIN AND IRELAND, NATURE PRINTED,' ETC.;
CURATOR OF THE CHELSEA BOTANIC GARDEN.

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| PART 1—contains Synopsis of Genera, Classification, etc., pages | ix.—lvi. |
| PART 2.—Ditto Ditto Ditto pages | lvii.—civ. |
| PART 3.—Ditto Ditto Ditto pages cv.—cxxviii.; and Alphabetical Index, pages | 1—24. |
| PART 4.—Alphabetical Index, pages | 25—72. |
| PART 5.—Classification, Synoptical Table of Genera, etc., pages cxxix.—cxl., and Alphabetical Index, pages | 73—108. |
| PART 6.—Table of Genera, pages cxli.—clii., and Alphab. Index, pages | 109—144. |
| PART 7.—Alphabetical Index, pages 145—180, and Plates | 1—6. |
| PARTS 8 & 9.—(Double Part) pages 181—204, and Plates | 7—20. |
| PART 10.—Pages 205—228, and Plates | 21—28. |
| PART 11.—Pages 229—264, and Plates | 29—34. |
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| PARTS 14 & 15.—(Double Part) pages 289—312, and Plates | 45—54. |
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| PARTS 17 & 18.—(Double Part) pages 337—360, and Plates | 63—72. |
| PART 19.—Table of Genera, pages cliii.—clxii.; Alphabetical Index, pages 361—372, and Plates | 73—78. |

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